

What is claimed is:

[Claim 1] 1. A manufacturing method of metal/metal compound layer, comprising:

placing a wafer in a chamber;

forming a metal layer on the wafer;

forming a metal compound layer over the metal layer in the chamber; and

controlling a sidewall temperature of the chamber to be kept at about 50 °C ~ 70 °C during the steps of forming the metal layer and the metal compound layer.

[Claim 2] 2. The manufacturing method of claim 1, wherein the step of forming the metal layer comprises forming a titanium layer.

[Claim 3] 3. The manufacturing method of claim 1, wherein the step of forming the metal compound layer comprises forming a titanium nitride layer.

[Claim 4] 4. The manufacturing method of claim 1, wherein the step of forming the metal layer on the wafer comprises supplying argon to the chamber.

[Claim 5] 5. The manufacturing method of claim 1, wherein the step of forming the metal layer on the wafer comprises performing magnetron DC sputtering.

[Claim 6] 6. The manufacturing method of claim 1, wherein the step of forming the metal compound layer over the metal layer in the chamber comprises supplying nitrogen and argon to the chamber.

[Claim 7] 7. The manufacturing method of claim 1, wherein the step of forming the metal compound layer over the metal layer in the chamber comprises performing reactive sputtering.

[Claim 8] 8. The manufacturing method of claim 1, wherein the step of controlling the sidewall temperature of the chamber to be kept at about 50 °C ~ 70 °C during the steps of forming the metal layer and the metal compound layer comprises:

measuring the sidewall temperature of the chamber; and
controlling a flow rate of cooling water based on the sidewall temperature so
as to keep the sidewall temperature of the chamber at about 50 °C ~ 70 °C.

[Claim 9] 9. A manufacturing method of titanium/titanium nitride,
comprising:

placing a wafer in a chamber;
performing magnetron DC sputtering process in the chamber to form a
titanium layer on the wafer;
performing reactive sputtering process in the chamber to form a titanium
nitride layer over the titanium layer; and
controlling a sidewall temperature of the chamber to be kept at about 50 °C ~
70 °C during the processes to form the titanium layer and the titanium nitride
layer.

[Claim 10] 10. The manufacturing method of claim 9, wherein the
step of performing magnetron DC sputtering process in the
chamber to form the titanium layer on the wafer comprises
supplying argon to the chamber.

[Claim 11] 11. The manufacturing method of claim 9, wherein the
step of performing reactive sputtering process in the chamber to
form the titanium compound layer over the titanium layer comprises
supplying nitrogen and argon to the chamber.